Mrs. Graf

UNITED STATES DEPARTMENT OF AGRICULTURE
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M O N T H L Y N E W S L E T T E R

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D. G. Miller is in Washington assisting with the report on the Rehabilitation of the Little River Drainage District, W. D. Ellison also spent about two weeks on this report.

A report on the Maintenance of Drainage Ditches has been prepared by Mr. Ellison based on field studies which he made in Delaware.

Construction of experimental apparatus at the University of Iowa for testing the flow of water around bends has been completed. During the month D. L. Yarnell, in charge of this work, completed tests of 90° and 180° bends. The pipes tested were constructed of transparent pyralin, 6 inches in diameter.

Run-off and slope measurements made by P. L. Hopkins in the vicinity of Bowling Green, Ohio, during the recent floods indicated that the water was the highest since the 1913 flood.

F. O. Bartel is preparing plans of an experimental pumping outfit to clean out a silt box after rains, using the suction principle. The size and location of the box are such that hand cleaning is very expensive. If the pump is successful this expense will be materially decreased.

During the week beginning April 10, N.A. Kessler assisted in conducting a course in the use of explosives at the Michigan State College, Lansing.

Preliminary results on the Upper Mississippi Valley Soil Erosion Station as reported by G. E. Ryerson show that 49 times as much soil was lost from an unterraced cultivated watershed as from the cultivated terraced land on the farm. Two rains amounting to 3.27 inches produced soil losses of 3.56 tons per acre on the unterraced cultivated land, 0.072 tons per acre on cultivated terraced land and 0.083 tons per acre on unterraced pasture land.

On the Tyler (Texas) farm the soil loss from terraced pasture land for 1932 was 29.6 per cent of that from cultivated terraced land according to R. W. Baird. No apparent erosion was noticeable on the pasture land even with a vertical spacing of seven feet between the terraces while on the cultivated land there was considerable gullying between terraces with the same spacing. It was also found that soil losses increased with an increase in spacing of terraces 1,700 feet long while for short terraces, 700 feet long, there appeared to be no definite relation between

the soil losses and spacing of terraces. This difference between results obtained for long and short terraces is attributed to the fact that there is a greater volume and velocity of water in the long terrace channel sufficient to prevent settling of soil washed into the channel from small gullies or depressions between the terraces.

Results of experiments on the Hays project show that of the four general tillage practices for wheat, listing is the best from the standpoint of soil losses by erosion. R.R. Drake reports that soil losses in tons per acre for the year 1932 for the different practices were as follows: Listing, 2.66 tons; one way plowing, 2.83 tons; stubbling in, burning and one way plowing, 5.19; and moldboard plowing, 6.7 tons. The water losses in inches for the above practices respectively were 3.19 inches, 5.12 inches, 5.2 inches and 4.07 inches.

The construction of about fifty small brush, rock and pole check dams on a badly gullied area on the Guthrie project has been completed by H. E. Bergschneider. This area is being reclaimed for pasture and timber and only the very cheapest methods of controlling the gullies are being employed. The State Forestry Department is cooperating in this experimental work.

H. S. Riesbol reports soil losses in tons per acre for terraces with different grades for the Guthrie farm during the year 1932 as follows: 6-inch grade, 15.06; 4-inch grade, 8.76 tons; 2-inch grade, 7.27 tons; level grade, 4.06 tons. Ninety-one per cent of the soil losses and 39 per cent of rainfall occurred during the period May 31 to July 5 when the total rainfall amounted to 14.0 inches. The total rain for the year amounted to 36.2 inches. The heavy soil losses were due principally to the intense rains occurring close together during the period of slightly longer than one month.

Chas. A. Bennett visited Sherman, Tex., April 4 to 7, for the purpose of inspecting the developments in cotton ginning machinery at that place.

J. S. Townsend, Cotton Technologist and roller ginning specialist of the Bureau of Plant Industry, is at Stoneville engaged in cooperative work with Chas. A. Bennett relative to the ginning and cleaning of Pima cotton.

Problems of bale sampling, planting and compressing were discussed on April 14, at a conference at Stoneville, Miss. by Mr. Bennett of this Bureau and Messrs. F.L. Gerdes and Sam W. Martin of the Bureau of Agricultural Economics.

W.W. McLaughlin is in the Washington office conferring regarding the work of the Irrigation Division for the coming year.

Inspection of a drainage condition along the Snake River, Idaho, disclosed the fact that seepage from Lake Lowell appeared along the Snake River slope from one to eight miles distant from the lake, according to J. C. Marr. It was tentatively concluded that open strata exist, which afford relatively free passage of water from the lake to the river slope. It is proposed to prospect the area adjacent to the lake on the lower side and the ridge bordering the slope by drilling numerous test holes. If the expected conditions are found to exist, the porous strata will be tapped by drains if possible; otherwise, they may be pumped. In dozens

of places the steep slope has become saturated to the point that great areas have sloughed off. It is expected that the Division of Irrigation will be called upon to help in the solution of this problem.

Uniform penetration of irrigation water on a field a quarter of a mile long near Phoenix, Ariz., is obtained by a unique method described by Karl Harris. The upper two-fifths of the field is furrowed and the lower three-fifths is check bordered. When the water is turned in at the upper end, it is run in every other furrow. As soon as the water gets to the lower end, the stream is divided and turned into every furrow. After irrigation, thirty soil tests were made in this field to a depth of 7 feet and no dry dirt was found.

In connection with our water-spreading project, Dean C. Muckel reports that the Piru Creek spreading grounds are of special interest as they are the only known grounds in southern California where silty water is spread successfully. The water is spread through a series of nine basins with the upper basins acting as settling ponds. After two years of use, the upper two basins are the only ones showing signs of silt deposit. The uppermost basin is, however, nearly filled with sand and silt.

Experiments to determine the amount of water percolating downward and the amount lost by surface evaporation are being conducted at the Medford, Oregon, experiment station, by R. A. Work. Two cores of soil 3 1/2 x 3 1/2 ft. by 4 ft. deep were isolated from roots by means of 5-inch concrete walls extended 6 inches into the bed rock. The cores adjoin. One core has been sealed over and the other left open. Each core will be sampled periodically for two or three years. Information concerning percolation and evaporation will be particularly valuable in estimating root concentration by rate of moisture extraction from the soil.

L. T. Jessup is in Washington, D. C., attending a conference with regard to the Kootenai River investigations.

A progress report on Consumptive Use of Water along Coldwater Canyon near San Bernardino, Calif., by Harry F. Blaney, Colin A. Taylor, and Harry G. Nickle, was submitted.

R. B. Gray spent April 1 at Toledo, Ohio, inspecting the work conducted at that point on corn borer control machinery.

R. M. Merrill left Toledo, Ohio, April 21, for Ames, Iowa where he plans to test out, under Iowa conditions, the recently developed trash guides for plows. From there he will proceed to Urbana, Ill., to confer with Mr. Cleaver on matters pertaining to the corn borer project.

A rotary plow imported from Australia for experimental work in the control of insect pests has been delivered at Toledo where it will be tested.

A second series of tests with trucks and tractors using mixtures of alcohol and gasoline as fuel have been made at Toledo, Ohio. Considerable time has also been spent by engineers in the Washington office in collecting and compiling reliable information on the use of alcohol as a motor fuel.

G. A. Cumings left Washington April 12 to begin the season's work on fertilizer placement studies in the South Atlantic States. L.A. Sharp and W. H. Redit, who are assisting with the project, are working in the Gulf Coast States.

A series of tests on grain cleaners at University Farm, St. Paul, Minn. has been completed by L. G. Schoenleber. Mr. Schoenleber will come to Washington to begin the preparation of a report on the work.

In connection with forage drying experiments E. D. Gordon reports that by passing green forage between hot crushing rolls considerable moisture is evaporated and the crushed material dries more quickly in the apron conveying drier than uncrushed forage.

Tests of modern vaporizing oil burners are being made by A.H.Senner at the Gas Engineering Laboratory at Johns Hopkins University, Baltimore. Tests will be made of oil burners to replace coal and wood in kitchen ranges and of oil-burning water heaters and circulator heaters. Efficiency of combustion is measured by the Burrel method of gas analysis.

An experimental building to test the use of canvas as an outside covering over wood sheathing is to be erected at Beltsville, Md. Canvas will be protected by various treatments including lead paint, fireproof paint, rubber paint, asphalt-aluminum paint, and asphalt. Canvas will be used as a cover on both roof and walls.

Experimental exterior coatings on the rammed earth laboratory building at Arlington Farm are showing some interesting comparisons. The asphalt coats applied with a priming coat of light tar, the Cunningham coal tar paint, home-mixed linseed oil paint, and one of the commercial cement paints are in first class condition. The whitewash, cement wash, and Sylvester wash when used alone all show signs of failure and will soon be replaced. Other paint coatings show deterioration but are still serviceable. Stucco coats of both lime and cement stucco show considerable checking but are still in serviceable condition. This checking may be due to differences in coefficients of expansion between the earth wall and the stucco, which has no steel reinforcing. The asphalt and tar coatings seem very satisfactory except for their color. Portions of these panels will be painted with aluminum paint, asphalt-aluminum paint, and metallic zinc paint to improve the appearance.

Unit heaters have been installed in the sugar-beet greenhouse of the Bureau of Plant Industry at Arlington Farm to determine the relative efficiency of unit heaters and of the pipe coil radiation with which the house was originally equipped. It is planned to operate the two systems alternately for an entire heating season.